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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,102	12/21/2000	Dennis Lee Doane	TI-23064	2206
23494	7590	05/20/2004	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265			DESIRE, GREGORY M	
			ART UNIT	PAPER NUMBER
			2625	
			DATE MAILED: 05/20/2004	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/746,102

Applicant(s)

DOANE, DENNIS LEE

Examiner

Gregory M. Desire

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1--13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 11-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communication filed 3/5/04.

Response to Amendment

2. Applicant's argument in view of 35 USC 103 has been fully considered but they are not persuasive. The claims rejections have been maintained. See response to arguments below.

Response to Arguments

Applicant argues (remarks page 6 lines 19-23) Johnson or Yonemitsu fails to correct a captured test image to remove DMD mirror tilt angle non-uniformities from said test image. This argument is not persuasive because it is the position of the examiner that Johnson does teach correcting a captured test image to remove DMD mirror tilt angle non-uniformities (note col. 5 lines 13-20 and 33-61). Johnson's system projector uses DMD device, Johnson col. 5 lines 55-61 describes the rotational state of DMD mirror, wherein the projection can create distortion. The examiner interprets this as DMD mirror tilt angle non-uniformities. As in the specification page 11 lines 15-24 of the instant application, the correction/ removal of non-uniformities is performed in the filtering operation, Johnson transformation function corrects/removes non-uniformities (note col. 5 lines 18-20).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (6,310,650) in view of Yonemitsu et al (5,485,279).

Regarding method claims 1 and 7 Johnson discloses,

Building a reference surface correction image (the instant application builds reference image using bilinear interpolation in fig. 4. Johnson also performs bilinear interpolation to form corresponding image (note fig.9; block 226).

Capturing a test image (note fig. 8 block 202);

Correcting said test image to remove DMD mirror tilt angle non-uniformities from said test image, further correcting said test image to remove system illumination and optics non-uniformities from said test image (note fig. 8 block 206, the examiner interprets non-desirable characteristic as non-uniformities, captured image identifies transformation function to correct and remove non-uniformities, also see above arguments);

Multiplying said test image by said correction reference image to produce a low spatial uniformity result image (instant application cites this step performs flattening of surface fig. 4 step 4, Johnson col. 18 lines 35-40, selects flatten field image from algorithm entered); and

Johnson is silent disclosing extracting low frequency non-uniformity defect data from the result image. However, Yonemitsu discloses extracting low frequency non-uniformity defect data from the result image (note col. 14 lines 35-40).

Therefore it would have been obvious to one having ordinary skills in the art to include extracting low frequency non-uniformity defect data from the result image in the system of Johnson as disclosed by Yonemitsu. Johnson provides image data. Yonemitsu in the same field of endeavor extracts low frequency components alleviating noise and the degradation of image quality (note col. 12 lines 50-54).

Regarding claim 2 Johnson and Yonemitsu discloses,

Stepping a small 50x50 pixel region of DMD mirrors having constant reflectivity from point to point in a grid pattern over the field of view of the test DMD (note col. 5 lines 32-40);

Recording the intensity data at each of said points in said grid pattern (col. 5 lines 42-45);

Performing a bi-directional interpolation between said grid points in two dimensions over image to provide said reference surface correction image (note col. 13 lines 23-25).

Regarding claims 3 and 8 Johnson and Yonemitsu discloses,

Capturing said test image in smaller frames (note col. 6 lines 58-59);

Removing high spatial non-uniformity components using a 21x21 pixel-smoothing filter (note col. 7 lines 1-8);

Stitching said frames together to form a full size test image (note col. 9 lines 10-15, overlapping regions); and

Taking average of said frames to remove said stitched image boundary discontinuities.

Regarding claims 4 and 9 Johnson and Yonemitsu discloses

+/-20 degree illumination relative to 0 DMD mirror tilt angle (note col.5 lines 55-57);

Regarding method claim 5 Johnson and Yonemitsu discloses,

High spatial frequency defects (note col. 7 lines 5-7);

Stitched frame boundary discontinuities (note col. 7 lines 20-25);

DMD mirror tilt angle non-uniformities (note col. 5 lines 56-61);

Regarding method claim 6 Johnson and Yonemitsu discloses,

Said result image is flattened (note fig. 19, block 400);

Said result image consists essentially of data representing the DND mirror reflectivity non-uniformities (note col. 5 lines 59-61 and col. 7 lines 5-8).

Allowable Subject Matter

5. Claims 10-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 10, the prior art fails to teach correction reference surface provide a representative image, using image data to generate a second order equation and second order variations. Claims 11-13 are dependent on claim 10.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

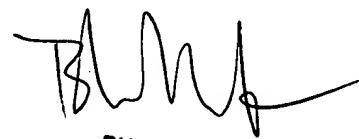
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory M. Desire whose telephone number is (703) 308-9586. The examiner can normally be reached on M-F (8:30-6:00) Second Monday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Gregory M. Desire
Examiner
Art Unit 2625

G.D.
May 17, 2004



BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600